Space Weather Forecast

Issued on Saturday, 14 October 2023 at 13:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Current fast wind from a coronal hole gradually reducing through the weekend. Likely rising chance of Moderate-class flares. Further coronal hole fast wind may arrive early next week, with a Chance of G1/Minor Storm.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low in the past 24 hours, although an isolated high level Common-class flare was observed at 14/0515UTC from a region in the southwest, almost reaching the Moderate-class threshold. There are currently seven numbered sunspots on the visible disc. Only small changes in spot evolution have been observed in recent imagery. The largest region in areal extent is a bi-polar region in the northeast, with a moderately magnetically complex bi-polar region located in the southwest. Other spot regions are relatively small and unremarkable.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds rose erratically from slightly elevated to largely elevated levels after 13/2145UTC. The magnetic field was at mostly Moderate to Strong levels before 13/2130UTC, with the all important north-south component varying between northward and southward orientation, although mostly north. After 13/2130UTC magnetic fields reduced markedly to weak levels, and largely northward pointing. Geomagnetic activity was Unsettled to Active (Kp 3 to 4) at first, before reducing to Quiet (Kp 1 to 2) after 13/2100UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a slightly rising Chance of Moderate-class flares through the four-day period as a result of potential returning regions.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs are currently in the forecast. The current fast wind from CH58 is likely to wane through the UTC weekend. Geomagnetic activity has become generally Quiet, although there remains a chance of Unsettled intervals on Day 1 (14 Oct). By the new working week CH60/+ fast wind may arrive (16 Oct), leading to a Chance chance of G1/Minor Storm.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	30	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	25	30	40	40
Very Active	R3 to R5 X	No	1	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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